

REMARKS/ARGUMENTS

After the foregoing Amendment, Claims 3 – 29 and 33 – 36 are currently pending in this application. Claims 1–2 and 30–32 have been previously cancelled. Claim 36 is amended by including features of claim 37, which is cancelled. Applicants submit that no new matter has been introduced into the application by these amendments.

Claim Rejections - 35 USC §112

Claims 3 – 29 and 33 – 37 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The amendment to claim 36, which currently recites, “separating fine particles, dust, and particles from the particles entrained by the processing gas and returning the fine particles” obviates the rejection. Accordingly, withdrawal of the §112 rejection is respectfully requested.

Claim Rejections - 35 USC §102

Claims 34 and 35 were rejected under 35 U.S.C. § 102(b) as anticipated by WO01/83727 to Barendse.

Applicants respectfully traverse the rejection.

Claims 34 and 35 depend from claims 17 and 36 and are product by process and method of using the product by process claims, respectively. Claims 34 and 35 include features which are not taught by Barendse, namely that the gas stream has a circular flow arranged in an axial direction of the reaction chamber.

Barendse describes a method of producing enzyme granules comprising the steps of injecting one or more liquid enzyme preparations via spray nozzles into a fluidized bed subjecting the enzyme solution to a granulation process, separating the particles from the gas flow, returning the particles to the fluidized bed via the gas flow as seed material and discharging the particles via sifters. A disadvantage of the process according to Barendse is that the processing gas is homogeneously distributed over the entire cross section of the fluidized bed.

Consequently there is no concentrated solid comprising gas stream for injection of liquid enzyme formulations, where moistened particles are not only dried but also granulated as claimed. Dust particles can be returned, but are practically distributed all over the cross section of the fluidized bed. Consequently the formation of granules is slow leading to a long dwell time in the processing space and the granules formed have a suboptimal strength, leading to dust

formation. Moreover, the spray of droplets of the enzyme solution and the spray droplets of the inert material are not in close contact. As a result, separate particles of inert material and enzyme particles are formed, instead of particles with a homogeneous matrix as claimed.

Thus, the granulates are materially different from those in Barendse. This is emphasized clearly by the specific parameters given in claim 17 upon which claim 34 depends.

In view of the arguments present above, withdrawal of the §102 rejection of claims 34 and 35 is respectfully requested.

Claim Rejections - 35 USC §103

Claims 3, 5 – 6, 8 – 9, 11 – 13, 15 – 26, 28 – 29, and 33 – 36 were rejected under 35 U.S.C. §103(a) as obvious over WO 01/83727 to Barendse et al. in view of U.S. Patent No. 4,354,450 to Nagahama et al and further in view of U.S. Patent No. 3,777,874 to Birckhead and U.S. Patent Application Publication No. 2006/0105024 to Andela.

Claim 37 was rejected under 35 U.S.C. § 103(a) as obvious over Barendse, in view of Nagahama, in view of Birckhead, in view of Andela and further in view of U.S. Patent No. 5,575,068 to Hartman et al.

Claim 4 was rejected under 35 U.S.C. § 103(a) as obvious over Barendse in view of Nagahama, in view of Birckhead, in view of Andela and further in view of U.S. Patent No. 4,233,007 to Karlsson.

Claims 7 and 10 were rejected under 35 U.S.C. § 103(a) as obvious over Barendse in view of Nagahama, in view of Birckhead, in view of Andela and further in view of U.S. Patent No. 4,100,262 to Miller.

Claim 27 was rejected under 35 U.S.C. § 103(a) as obvious over Barendse, in view of Nagahama, in view of Birckhead, in view of Andela and further in view of U.S. Patent No. 4,009,076 to Green et al.

Applicants respectfully traverse the rejection.

Further to the comments above regarding Barendse, Claim 36 as amended teaches that one or more solutions, suspensions or melts are injected separately from the enzyme solution via a three or four way nozzle. The nozzles by Hartman, on the other hand, have only one common liquid supply which is distributed into two or four injection nozzles, which is done to save space. In contrast, as a particular feature of claim 37, now incorporated into claim 36, the enzyme solution is sprayed through one or more separate nozzles, whereas the additive solution, for instance, a solution comprising a binder, is sprayed and injected through a separate nozzle adjacent to the first (enzyme) nozzle such that the two sprays come into close contact with each other and the fluidized solid particles. The multiple-way nozzle can be positioned in the center of the chamber whereby the solids in the gas steam

will be sufficiently moistened and will agglomerate quickly, and will be dried before they hit the wall of the processing chamber such that they do not stick to the wall but will be recirculated quickly.

The total effect is that the dwell time in the processing space and the contact time with the heated processing gas is reduced such that the enzyme granulates produced following the method of the invention contain a minimum amount of inactivated enzymes and have a low dust content.

Mixing the enzyme and additives tends to cause flocculation of the enzymes or high viscosity enzyme solution with the result that the injection rate is reduced. This would lead to a slow granulation rate and consequently a longer residence time of the enzyme in the process, to undesirably long exposure to heat and thus to more inactivation of enzyme.

Furthermore, the combination with Barendse, Nagahama, Birckhead and Andela, Hartmann does not render the present invention obvious. The shorter residence time of the process following the present invention is an essential element compared to the process according to Barendse. The objective of the process according to the invention, the solution to which was not disclosed or suggested by Barendse and the other prior art, is to provide an enzyme product with a lower dust content and with a minimal enzyme activity loss (or a high specific enzyme activity).

If the enzyme has too high a moisture content, the enzyme activity will be reduced during storage, drying is therefore mandatory. Exposure to high

temperatures over longer periods of time, on the other hand, also leads to enzyme activity loss. Barendse teaches adjusting the drying rate. However, Barendse does not teach control of the granulation rate.

The process as currently claimed, however, allows control of both granulation rate and drying rate. Since it is an objective of the presently claimed process to produce a both dry and dust free enzyme product, it would be improper to characterize the drying rate or the granulation rate separately. What essentially counts is only that an enzyme product which is dust free and maintains a high specific enzyme activity. In other terms, it is not merely the objective to provide a dry enzyme product within a short residence time following the process of Barendse which is not, well granulated and therefore has a high dust content. Nor is it the objective to adjust the drying rate following Barendse and provide a dust free granulate following Barendse and provide actually dust-poor granulate in a short residence time following Barendse, but with the price that a high moisture content remains and thus, a granulate which will loose enzyme activity during storage.

Also a combination of Barendse with Nagahama does not lead to a process which allows the attainment of the objective given above, since it would not help to achieve a process where both agglomeration rate and drying rate are controlled at the same time, since it does not allow and teach to control the liquid injection rate, solid flow rate, and consequently the agglomeration as well as the drying rate. The present invention further allows for regulation of the agglomeration rate by further

amending the form and composition of the processing chamber by way of appropriate experimentation.

The other two references merely concern the deflection of a gas stream to be vertical to a nozzle by a deflector (Birckhead) or to introduce inert material by spraying. However, even in combination none of these references are able to suggest or motivate a skilled person to come to the novel solution of the present invention with SEPARATE enzyme and inert material spraying, the latter via multi-way nozzles.

In *Graham v. John Deere Co.* the United States Supreme Court cautioned against the use of hindsight whereby the teachings of an invention are read into the prior art. In *KSR v. Teleflex*, the Court recognized "hindsight bias" and "ex post reasoning" as inappropriate in a determination of obviousness. See also, *Sanofi-Synthelabo v. Apotex, Inc.*, 550 F.3d 1075 (Fed. Cir. 2008). The Examiner has relied upon impermissible hindsight reasoning, that is, looking at Applicants' claimed invention and piecing it together from several disparate references that do not even disclose all of the elements of Applicants' claimed invention.

Claims 3, 5 – 6, 8 – 9, 11 – 14, 15 – 26, 28 – 29 and 33 – 35 depend either directly or indirectly from claim 36, which applicants believe to be allowable for the same reasons above.

Accordingly, withdrawal of the § 103 rejection of claims 3 – 29 and 33 – 36 is respectfully requested.

It is respectfully requested that an interview be conducted to discuss acceptable claim language to express the intended claimed structure that is clearly not taught by the prior art. Such course of action is consistent with the policy expressed by Director Kappos as reported in the August 27, 2009 IPO Newsletter as follows:

THURSDAY, AUGUST 27, 2009, 9:30 a.m.

KAPPOS TELLS U.S. PATENT EXAMINERS THAT QUALITY DOES NOT EQUAL REJECTION -- Yesterday several blogs in the U.S. covered a message addressed to USPTO patent examiners on "The Official Blog of Under Secretary David Kappos." Among other things, Kappos said, "On the subject of quality, there has been speculation in the IP community that examiners are being encouraged to reject applications because a lower allowance rate equals higher quality. **Let's be clear: patent quality does not equal rejection.** Patent quality equals granting those claims the applicant is entitled to under our laws. In some cases this requires us to reject all the claims when no patentable subject matter has been presented. . . . In other cases this means granting broad claims when they present allowable subject matter. . . ." (Bold in original.) The blog can be accessed only by USPTO employees at this time, but it is reported that it may be accessible to the public in the future.

It is clear that the prior art does not disclose the steps and structural elements of the process as taught by Applicant. It is respectfully submitted that the requested telephonic interview will enable the parties to arrive at appropriate claim language so that this case can be allowed without appeal. Please call or email the undersigned with a proposed time and date for such an interview.

Conclusion

If the Examiner believes that any additional minor formal matters need to be addressed in order to place this application in condition for allowance, or that a

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telephone interview will help to materially advance the prosecution of this application, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the present application, including claims 3 - 29 and 33 - 36, is in condition for allowance and a notice to that effect is respectfully requested.

Respectfully submitted,
Rümpler et al.

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